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K0sKch femtoscopy in Pb-Pb collisions at sqrt(s)=2.76 TeV from the LHC ALICE experiment

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Femtoscopic correlations with the particle pair combinations $K^0_S K^{\pm}$ are studied for the first time. This method has been applied to Pb-Pb collisions at $\sqrt{s_{\rm NN}} = 2.76$ TeV by the LHC ALICE experiment. Correlations in the $K^0_S K^{\pm}$ pairs are produced by final-state interactions which proceed through the $a_0(980)$ resonance. It is found that the a_0 final-state interaction describes the shape of the measured $K^0_S K^{\pm}$ correlation functions well. The extracted radius parameter for $K^0_S K^-$ is found to be equal to that for $K^0_S K^+$ within the errors of the present measurement. Comparing the results of the present study with those from identical-kaon femtoscopic studies by ALICE, mass and coupling parameters for the a_0 resonance are constrained and the branching ratio of non-resonance to resonance final-state interactions for $K^0_S K^{\pm}$ is estimated.

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